UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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DAVID H. JUDSON
15455 DALLAS PARKWAY
SUITE 600
ADDISON, TX 75001

EXAMINER
BOYCE, ANDRE D

ART UNIT	PAPER NUMBER
3623	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	09/465,690	LEAMON ET AL.
Office Action Summary	Examiner	Art Unit	
	Andre Boyce	3623	UW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>09 August 2004</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims   19 SMD

4)☒ Claim(s) *1,3-9 and 12-18* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19* is/are allowed.

6)☒ Claim(s) *1,3-9 and 12-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This Final office action is in response to Applicant's amendment filed August 9,

2004. Claims 1, 3-9, and 12-19 are pending.

2.   The previously pending rejections to claims 1, 7-9, and 19 under 35 U.S.C. 112,

first paragraph have been withdrawn.

3.   Applicant's arguments filed August 9, 2004 have been fully considered but they

are not persuasive.

Claim Rejections - 35 USC § 103

4.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

5.   Claims 1, 3-9, and 12-18 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Castonguay et al (USPN 5,911,134), in view of Crockett et al

(USPN 6,044,355), in further view of Gabriner et al (USPN 5,848,403).

As per claim 1, Castonguay et al disclose a method for assigning a group of

agents to a plurality of available schedules (see column 17, lines 65-67), comprising

the steps of determining preferences for a plurality of factors for each agent (see

column 18, lines 9-11), assigning an order of importance for the plurality of factors

for each employee (see column 18, lines 14-18), determining a ranking for each

agent from highest to lowest based on given criteria (seniority of the agent, column

3, lines 35-36), and determining a difference value for each factor between a current

schedule and the agent's preference for that factor (i.e., match between assigned

tours and preferences, see column 19, lines 12-16). The match being positive or

negative (e.g., Does it match the agent's preference?, yes or no), constitutes a

difference value between the preference and the schedule. Castonguay et al also

discloses one or more steps performed by an electronic processing device (see

figure 4).

Castonguay et al does not explicitly disclose performing the sub-steps on an

iterative basis, from a highest ranked agent to a lowest ranked agent, the sub-steps

being assigning the difference value for each factor to a bit range within a vector for

the current agent and current schedule wherein the factor having a highest

importance is assigned to a highest order bits of the vector and remaining factors

assigned to subsequent orders of bits in an assigned order of importance, wherein

the vector represents a numerical value that indicates how well the current schedule

fits the current agent's preferences, and assigning to the current agent the schedule

having the lowest numerical value.

Crockett et al discloses a net staff array and skills availability array used to plan

and schedule workforce personnel (column 4, lines 55-58). The arrays may contain

difference values, indicating for example staff and skill level needed to cover a

particular distribution of calls (column 5, lines 47-56). Further, Crockett et al disclose

further refinement of the skill array, including agent preferences (column 8, lines 41-

47). Crockett does not disclose an ordered bit range within the vector. Gabriner et al discloses soft constraints (i.e., preferences) considered in producing schedules. Resource bit array 30 includes and ordered set of bits, wherein a predetermined index (i.e., difference value assignment) indicates a resource capability (see column 7, lines 40-45). Castonguay, Crockett, and Gabriner are all concerned with effective agent scheduling, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include assigning the difference value for each factor to a bit range within a vector for the current agent and current schedule wherein the factor having a highest importance is assigned to a highest order bits of the vector and remaining factors assigned to subsequent orders of bits in an assigned order of importance, wherein the vector represents a numerical value that indicates how well the current schedule fits the current agent's preferences, in Castonguay et al, as seen in Crockett and Gabriner. By using this vector assignment system the Castonguay et al method would be able to rapidly and effectively evaluate and assign schedules based strictly upon agent preference, just as the Castonguay et al method already implements for tour coverage (see column 18, lines 33-42).

Claim 3 is rejected based upon the rejection of claim 1, since it contains the same limitations. Further, Castonguay et al does not explicitly disclose the unassigned vectors first being calculated for the highest ranked agent, and the schedule having the lowest vector being assigned to that agent, further including determining the lowest vector for the next highest ranked agent, and repeating until

each agent's schedule has been compared to every other agent's schedule. Gabriner et al also discloses an indexed location in each resource bit array 30 that indicates a qualification that corresponds to a constraint in a task bit array 50 (i.e., unassigned vector). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include this vector assignment and comparison step within the Castonguay et al method, in order to ensure that the effectiveness of the vector assignment is maintained. This vector assignment would be an obvious progression for the Castonguay et al method, which already gives provisional choice to higher ranked agents (see column 19, lines 61-67 and column 20, lines 1-2).

As per claim 4, Castonguay et al disclose agents ranked according to seniority (see column 17, lines 65-67 and column 18, lines 1-3). In order to generate schedules to satisfy agent seniority, the Castonguay et al method inherently has to rank the agents.

As per claim 5, Castonguay et al disclose agents ranked according to performance (see column 16, lines 23-26). The "Results" dataset maintained by the Castonguay et al method, which contains the agent performance statistics, would inherently have the ability to rank the agents.

As per claim 6, Castonguay et al does not explicitly disclose a schedule being assigned from a higher ranked agent to a lower ranked agent only if the assignment will decrease the lower ranked agent's vector without increasing the higher ranked agent's vector. However, it would have been obvious to one having ordinary skill in

the art at the time the invention was made to include this schedule swapping

between agents within the Castonguay et al method. This similar type of schedule

swapping, in order to improve the match between assigned tours and agent

preferences, already seen in the Castonguay et al method (see column 19, lines 11-

16) would ensure that every agent is given the lowest possible vector without

compromising the higher ranked agent's vector, thereby improving the effectiveness

and accuracy of the overall schedule assignment.

As per claim 7, Castonguay et al disclose the plurality of factors being selected

from the group of start times, break times, lunch times, days off, end time, lunch

length, split shift parameters, and hours worked (see column 18, lines 14-18).

As per claim 8, Castonguay et al disclose the plurality of schedules being

preliminary assigned schedules (see column 18, lines 65-67 and column 19, lines 1-

3). Once the initial tour is generated in the Castonguay et al method, the preliminary

schedule is complete.

As per claim 9, Castonguay et al disclose the plurality of schedules being a pool

of schedules (see column 19, lines 34-35).

Claims 12-15 are rejected based upon the rejection of claims 3-6, respectively,

since they are the computer program product claims, corresponding to the method

claims.

Claims 16-18 are rejected based upon the rejection of claims 7-9, respectively,

since they are the computer program product claims corresponding to the method

claims.

Allowable Subject Matter

6.   Claim 19 is allowed.

Response to Arguments

7.   In the Remarks, Applicant argues that the rejection of previously allowed claims

12-15 is in violation of the practice set forth in MPEP § 706.04. The Examiner

respectfully submits that each time a response to an office action is received the

claims are reassessed in light of any existing or new prior art found by the Examiner.

As a result, claims indicated as allowable are also reassessed and may be rejected

based upon the assessment.

Applicant also argues that the rejection of claims 16-18 is misplaced. The

Examiner respectfully disagrees with this assertion and submits that claims 16-18,

which are dependent upon currently rejected claim 12, are indeed rejected as seen

above. In other words, the rejection is not misplaced since claims 16-18 do not

depend from a currently allowed claim.

Applicant reminds the Examiner that Castonguay et al (USPN 5,911,134) and

Crockett et al (USPN 6,044,355) are owned by the assignee of the present

invention. The Examiner, not clear as to Applicant's specific point with regards to

the reminder, simply submits that both references qualify as prior art under 35 USC

102(e) and/or 35 USC 103(a).

Applicant also argues that Castonguay et al does not teach having an agent

determine preferences for a plurality of factors, enabling the agent to assign an order

of importance for the factor, or determining a ranking for each agent from highest to lowest based on given criteria. The Examiner respectfully disagrees and submits that Castonguay et al disclose preferences of the agents for a particular work schedule (see column 18, lines 9-11), preferences desired in priority order (see column 18, lines 14-18), and generating tours based upon seniority of the agent (column 3, lines 35-36).

Applicant goes on to argue that the resource bit array 30, as seen Gabriner et al, cannot be considered analogous to Applicant's recited vector, and that Gabriner et al teach away from the present invention. The Examiner respectfully disagrees. First, the Examiner notes that assigning factors (i.e., entries) in a vector according to ascending bit range is old and well known in the art, as seen in Gabriner et al (i.e., order set of bits within the resource bit array 30). Further, Gabriner et al discloses that the contents of the resource bit array usually don't change. Stated another way, the contents of the resource bit array can indeed change, if for instance, the capabilities of the resource changed. As a result, the resource bit array does not teach away from Applicant's invention.

Applicant also argues that the combined teaching of the references lacks an iterative process. The Examiner respectfully disagrees and submits that Gabriner et al disclose the process, including selecting a resource and encoding the genome appropriately (i.e., determining the resource bit array 30), repeated until all tasks are scheduled (Figure 7).

Lastly, in response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Castonguay et al, Crockett et al, and Gabriner et al are all concerned with effective agent scheduling. Further, Castonguay et al discloses using the embodiments as a basis for modifying or designing structures for carrying out the same purposes (column 20, lines 50-53).

Conclusion

8.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing

date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre Boyce whose telephone number is (703) 305-1867. The examiner can normally be reached on 9:30-6pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (703) 305-9643. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

adb
November 15, 2004

SUSANNA M. DIAZ
PRIMARY EXAMINER

AU. 3623